Appendix 10

SCHOOL HEALTH INFORMATION SYSTEM IMPROVEMENTS

Oversight of the school health program is one element of DOH's commitment to improve the health and wellbeing of children and young people in schools. The school nurses provide health services but also monitor the health conditions of children. In addition to examining and monitoring the health of the children, school nurses also collect statistical data to measure work activities, assist with program planning and allocation of nursing services throughout District public and public charter schools.

Background

There are a number of data systems that capture and maintain information relating to various facets of the school health program in the District of Columbia. They are listed in the following table and briefly described below.

Data System	Administration/Oversight	Observations
STARS	DC Public Schools	
School Nurse Disease Surveillance System	Primary Care and Prevention Administration (PCPA, DOH)	
Immunization Registry	PCPA	
Child Health Registry	Medical Assistance Administration (MAA, DOH)	Utilized the single medical registry form for Medicaid/EPSDT (SMRF)
Children's School Services	Children's National Medical Center (CNMC) under contract with the DOH Maternal and Family Health Administration	Manual data collection

DCPS has implemented ***STARS***, a web-based school intranet system designed to track and collect data on all children in DC public schools (but not those attending public charter schools). The system contains demographic and personal information on students, along with emergency information on parents and guardians. There are 147 DCPS buildings connected via private telecommunication infrastructure (Verizon) to the DCPS Computer Center at 825 North Capitol (fifth floor). These Verizon connections will be replaced by the Office of the Chief Technology Officer (OCTO) Wide Area Network connections within 12 months.

DOH has various data systems that collect data on school-aged children. The ***School Nurse Disease Surveillance System*** is implemented in 89 schools (approximately 60%) and contains routine encounter data on children as well as data on complaint and

symptoms of children presenting to the nursing suite. The system has the capacity to identify communicable disease patterns in the schools, and soon will be able to geographically map patterns by neighbourhood. This system, supported by bio-terrorism funds, is managed by a contractor (at an approximate cost of $54,000 a year in maintenance fees). DOH assigns one fulltime staff to the system.

The ***Immunization Registry*** captures vaccination data for children and adolescents. The contractor has begun a process of linking data with DCPS Stars system to assist in determining whether children are in compliance with the proper number and types of vaccinations required to attend school.

The Medical Assistance Administration (MAA) which oversees the city's Medicaid program is developing a central ***Child Health Registry*** that will link EPSDT data with immunization and lead screening data into a web-based information system. The registry will be accessible to providers and Managed Care Organizations. EPSDT information includes well-baby and well-child visit data.

Finally, the Maternal and Family Health Administration oversees the manual data collection system currently used by the primary contractor administering school health nursing services, CNMC, under its ***Children's School Services*** program. Nurses keep a daily log in order to generate and prepare a monthly report on activities at each school. All school health monthly data is then compiled into a spreadsheet to produce reports on elementary and secondary school activities by ward.

These various data systems capture information that is or could be useful to the development of a coordinated school health program. Data from STARS provides demographic and status information on each student. Demographic data would be useful for instance in helping to identify age and gender appropriate services or in assessing health-related behaviour risk (e.g., homelessness, absent parents). The School Nurse Disease Surveillance system captures important encounter data, while nurses able to access the Immunization Registry can quickly determine a child's status in that regard. Nurse's access to the Medicaid/EPSDT system would provide information on the student's previous well-child visits and health status, on the student's insurance status and medical provider, and could perhaps assist with billing for covered nursing services. Finally, the CNMC manual system captures administrative data on nurse activities and encounters with the student population.

Barriers to Data Access

Children's National Medical Center (CNMC), the contractor for the School Health Program, completed an assessment of the health facilities in each of the schools. The Health Suite Assessment Tool was developed in December 2004 with final revisions in March 2005. (See appendix N for a more detailed discussion of this survey's findings). The results were presented to DCPS/DOH officials with recommendations to use this tool to conduct a more definitive assessment of health suites using standards and recommendations developed by the National Association of School Nurses.

Listed below is a breakdown by ward of the school health suites computer/internet capabilities. Overall, less than half of the schools have computer capability in the health suites. Only 37 percent of the suites have internet capability. Lack of basic computer capabilities makes it difficult for the nurses to document activities, provide quality care, and have access to DOH and other health information systems.

Automation Capability of Schools by Ward
(As of July 2005)

Health Office Equipment	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5A	Ward 5B6	Ward 6	Ward 7	Ward 8	PCS*	% of Schools
Total # Schools	15	12	11	16	14	9	21	24	26	19	167
Computer	20%	33%	64%	44%	43%	22%	38%	54%	50%	74%	46%
Internet Connectivity	7%	25%	64%	38%	36%	22%	29%	38%	35%	74%	37%
Separate Computer Line	0%	25%	45%	44%	50%	22%	29%	42%	38%	63%	37%

Source: Children's School Services (CNMC)
*Public Charter Schools

Thus, most nurses do not have access to the existing and planned automated information systems discussed above. In many cases the nurse must go to another office (e.g., the school registrar's) to use a computer and access relevant internet web sites. The School Nurse Disease Surveillance System accommodates schools without internet access, by providing touchtone phone-based access to the information system. Those nurses using the phone system must go through a tedious process of entering encounter data through the phone's keypad. In some instances though, the nurse's suites are not even equipped with phones.

Developing an affordable information system for school health

In developing a comprehensive school health program, it is important to build an all inclusive, yet flexible information system. The system should assist the nurses and other health practitioners in their daily activities, provide management the capability of monitoring system-wide activities, and assist health and education planners in developing preventive services and developing educational curricula relevant to the school population's needs.

The following are desirable features for such a system:

- Web-based - nearly 200 school and other locations would access the database and enter information.
- Connectivity with the STARS – should have the ability to download information data on students within the individual school.
- Shared child health record – Nurses and other clinicians need to be able to follow a child through the school system to ensure continuity and coordination of care
- File structure – Reports on activities should be able to count students and encounters.
- Access other health-related data systems – Nurses should have access to the Medicaid/EPSDT and immunization systems and be able to bill third parties for covered services.
- Connectivity with other data sources – Mental Health, substance abuse treatment, and community-based facilities may be necessary.

Finally, the school health system should rely on accurate and timely management of information through an automated process. Advantages of electronic connectivity and automation include

- Eliminating the manual handling associated with gathering data and producing reports.
- Reducing requirements for pre-printed forms. The new system would contain all the forms as electronic templates with the added benefit of being partially completed with client's name, address, etc.
- More detailed, accurate and timely reporting, available to all parties at the same time through an automated process.
- Facilitating the availability of data for inter-school transfers, and timely staffing decisions at the nurse management level.

Overall, the most cost-effective approach would seem to build upon the School Nurse Disease Surveillance System capabilities, rather than developing an entirely new system. By using this system as a backbone to an expanded and comprehensive school health information system, there will be money and time savings in development.

Our preliminary estimate is that an expanded School Health Information System would cost approximately $250,000 - 350,000 depending on the level of sophistication for a Medicaid billing system. We estimate that the development and roll out of an expanded system could occur in a one year period. Once established, the maintenance costs for the system would be approximately $75,000. An additional DOH staff person will be needed for support since the size of the system would double in terms of facilities and population served. The costs for staffing are estimated to be $67,232 for a DS-12.

The development of a comprehensive data system is contingent upon modernizing each school health suite and creating the ability to link each charter school. Listed below is a breakdown of estimated costs for this task:

Task	# School Health Suites	Cost per Site	Total Costs
Provide PC with Internet capability	110	$1,100	$121,000
Printer (3-in-1)	110	350	38,500
Cabling to Health Suite	125	600	75,000
Total Hardware and Equipment			$234,500

Monies for this activity could be provided to a contractor for completion. As each school health facility is completed it would be provided access to the school health information system. A needs assessment should be performed to accurately project the above costs (at an estimated of $25-30,000).

We suggest the following steps for the development process:

1. Form a project team comprised of DOH IT and program staff; school health nurse contractors; DCPS IT, facilities, and program staff; DMH IT and program staff; parent and charter school representatives; and appropriate OCTO staff.
2. Conduct an up-to-date facilities assessment to cable and equip school health suites.
3. Develop health information needs assessment defining the requirements of the nurses and others involved in school health. (There should be significant consultation and involvement of school nurses in the development and introduction of the new system to facilitate acceptance and adoption by this group and to develop a useful and user-friendly product).
4. Determine an approach on how to upgrade the school health facilities in each school.
5. Develop plan to integrate and link the appropriate information systems with each school-based health facility.
6. Prepare a budget and timetable for implementation for the facilities improvement and development of the information system. (DOH IT estimates that wiring and installing equipment can be done in a 6-month period. Development and implementation of new software and training nurses and appropriate staff can be accomplished in one year).

Return